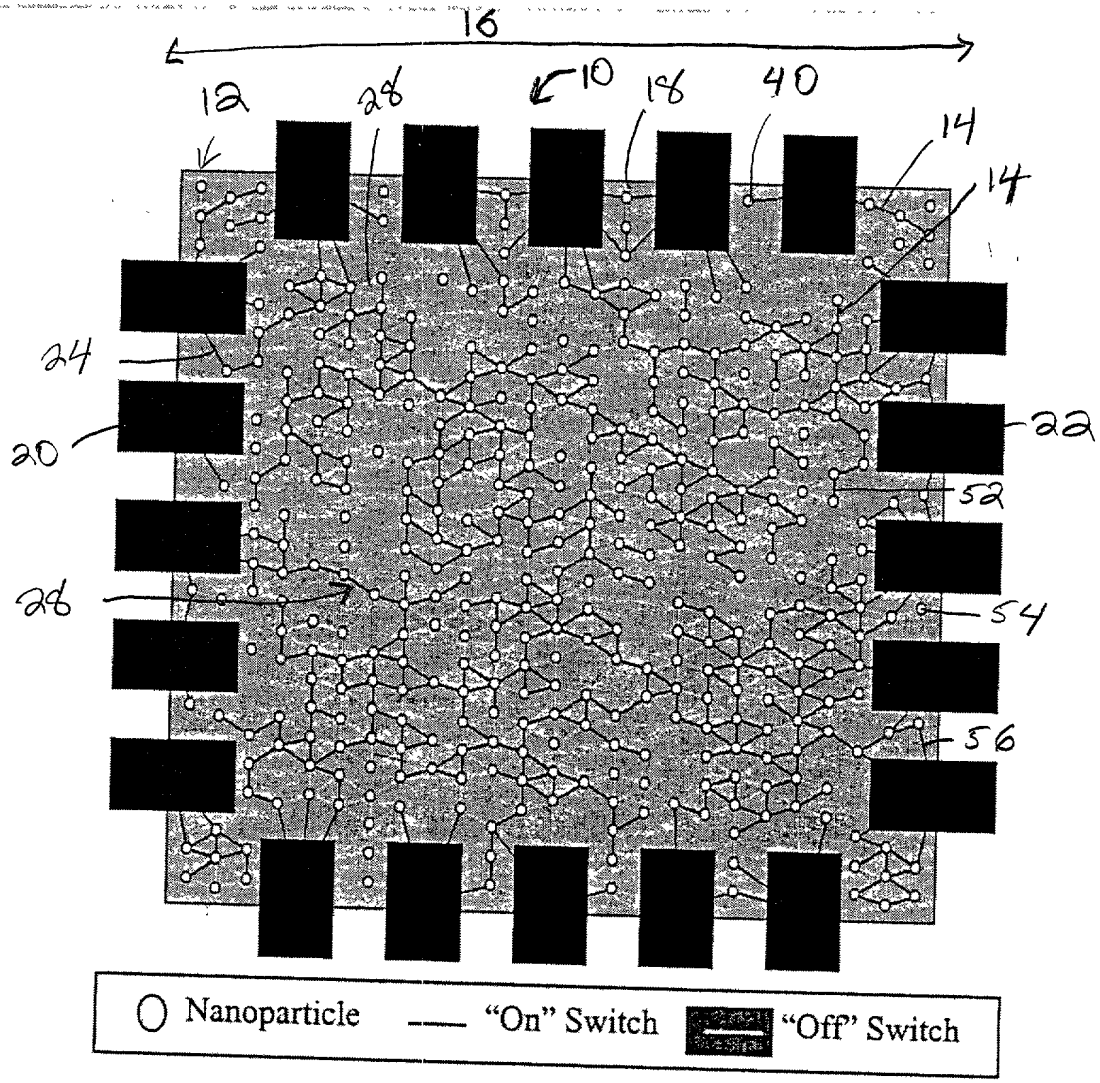

16
12
28
10
18
40
14
14
24
20
22
52
28
54
56
Nanoparticle
"On" Switch
"Off" Switch

FIG. 1

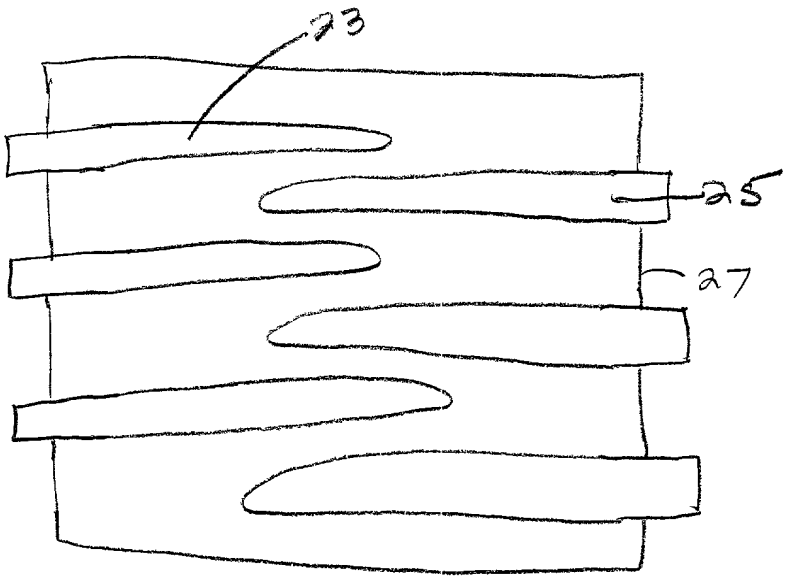


FIG. 2A

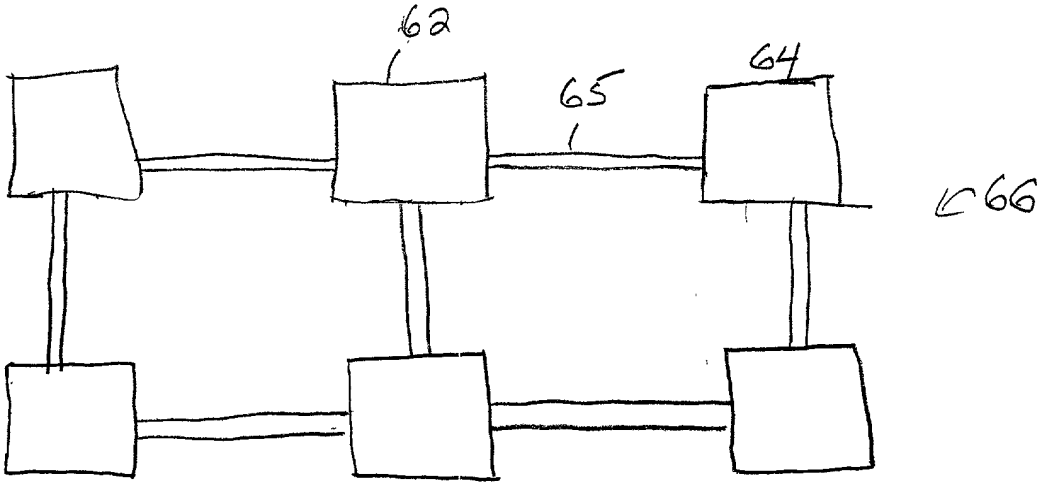


FIG. 5

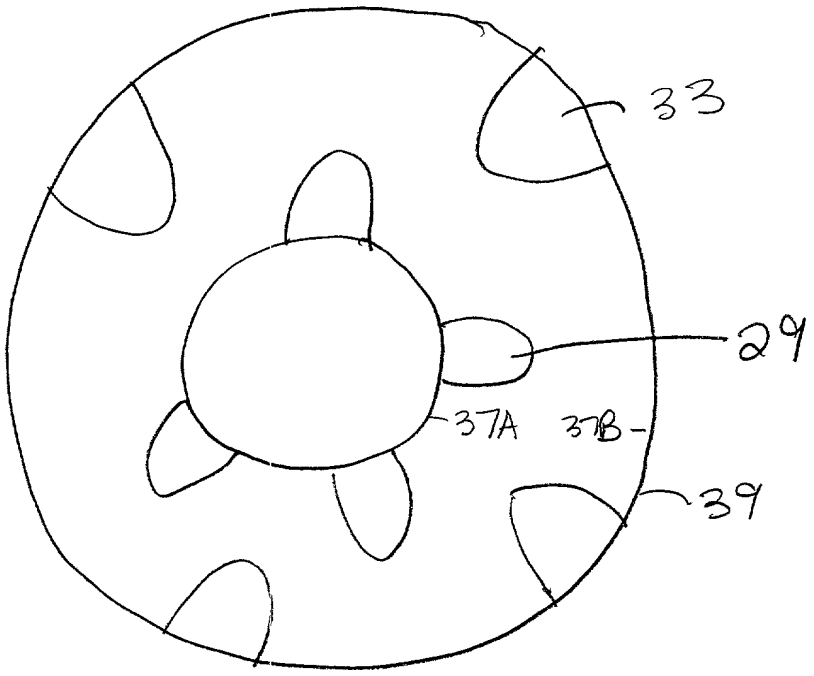


FIG. 2B

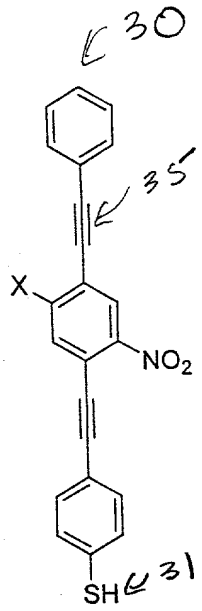

30
35
X
NO_2
SH
31
32
1, X = H
2, X = NO_2
34

FIG. 3

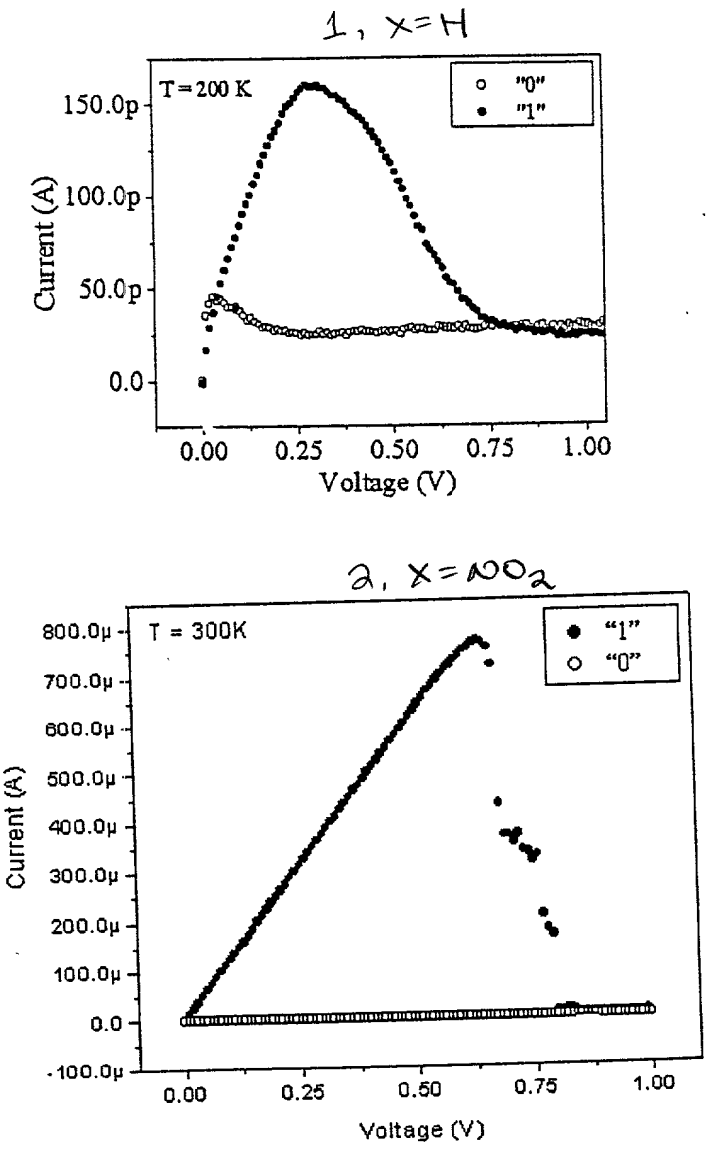
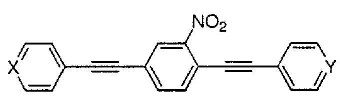
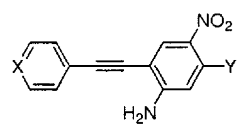

1, X=H
T=200 K
"0"
"1"
150.0p
100.0p
50.0p
0.0
Current (A)
0.00
0.25
0.50
0.75
1.00
Voltage (V)
2, X=NO2
T = 300K
"1"
"0"
800.0μ
700.0μ
600.0μ
500.0μ
400.0μ
300.0μ
200.0μ
100.0μ
0.0
-100.0μ
Current (A)
0.00
0.25
0.50
0.75
1.00
Voltage (V)

FIG. 4



X = Y = N
X = CH =, Y = N
X = N, Y = CH



X = N, Y = ethynylpyridine
X = CSAc, Y = ethynylpyridine
X = N, Y = phenyl

FIG. 6

Untrained Nanocell

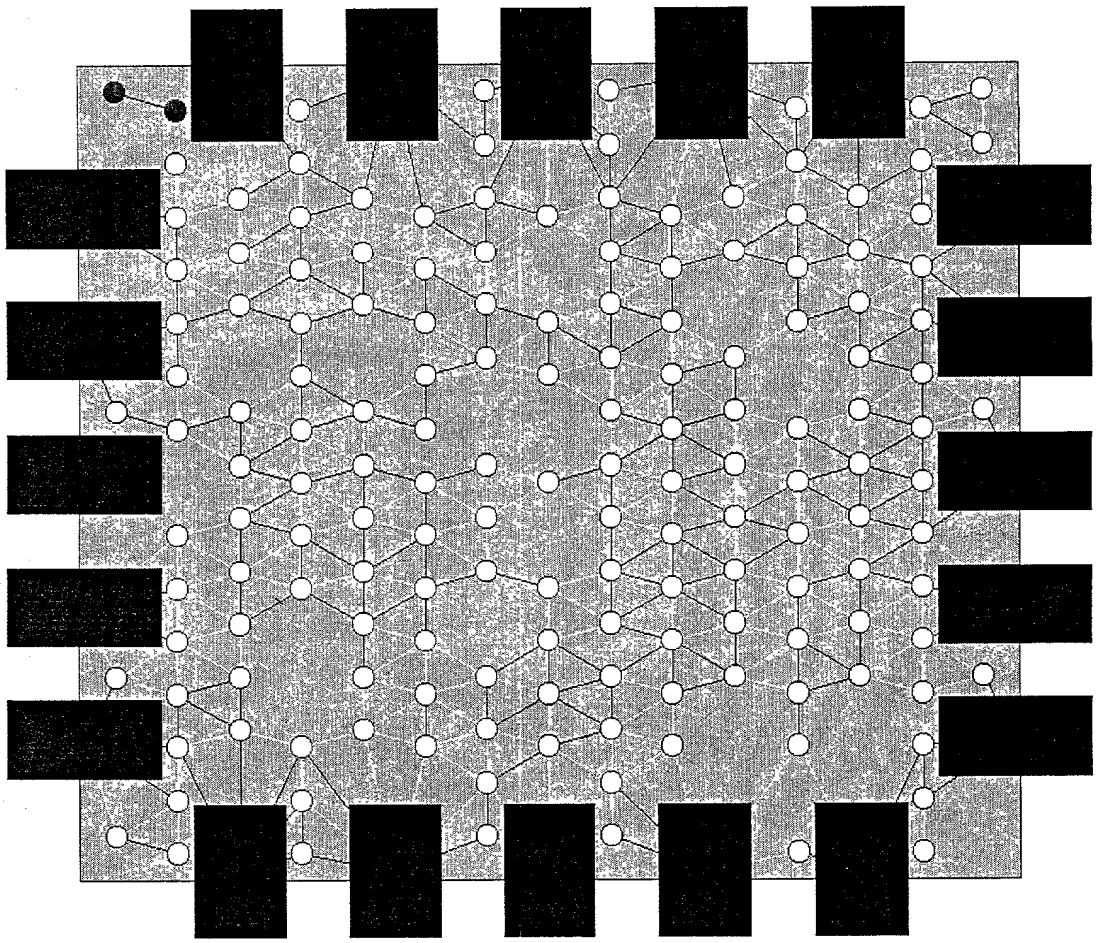
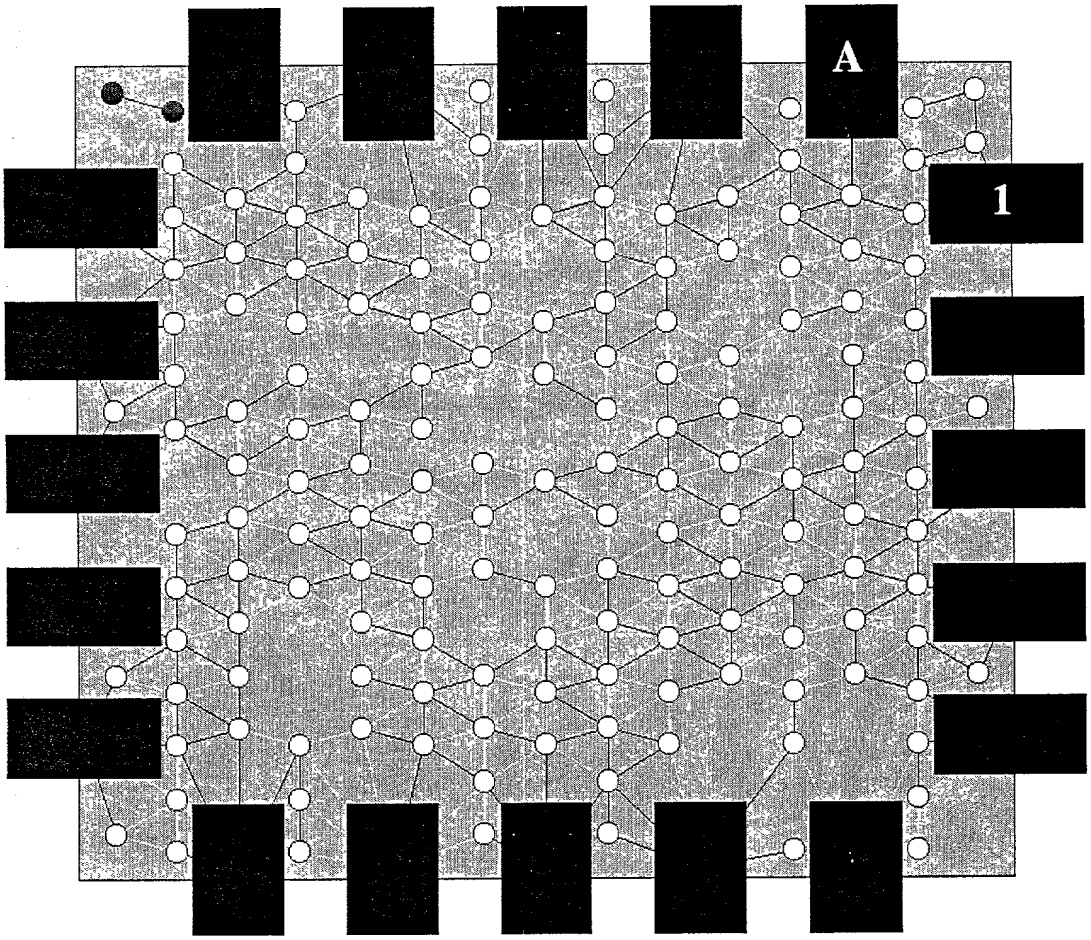


FIG. 7

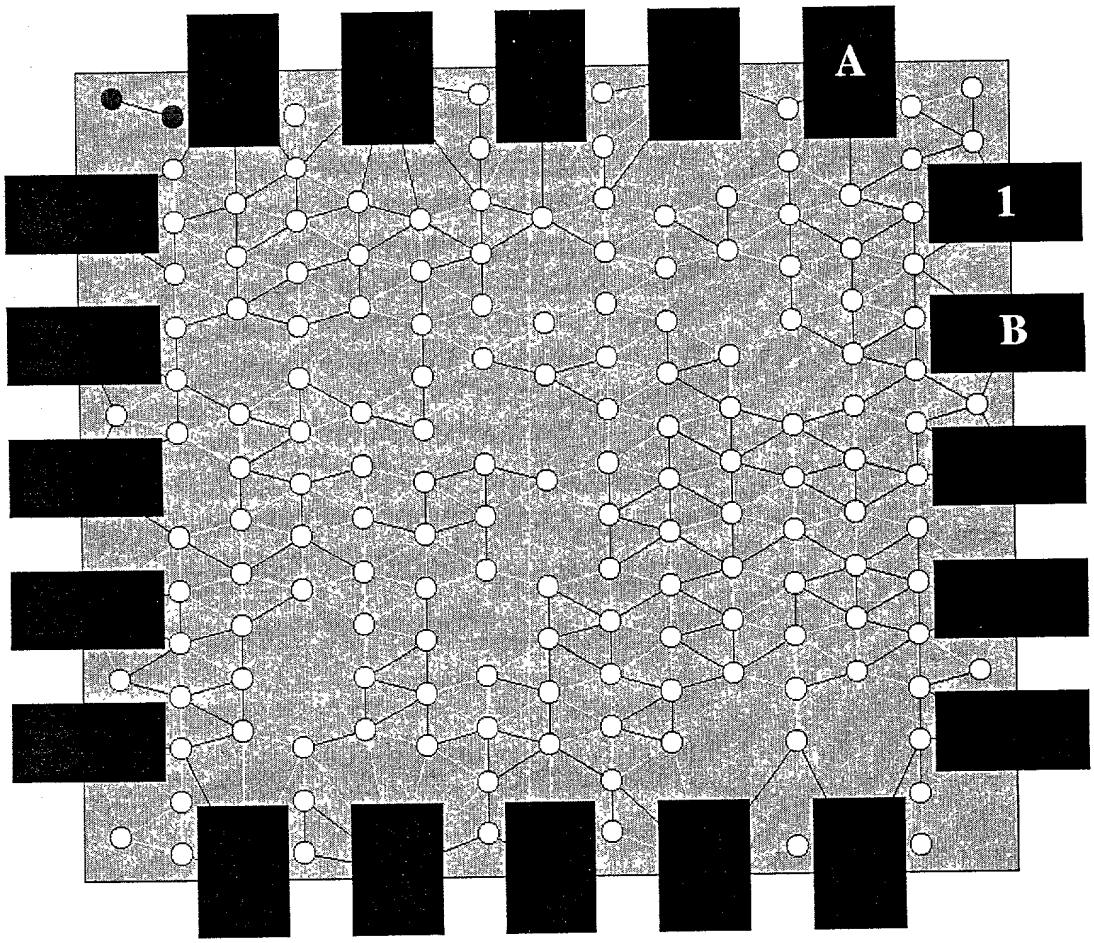
Nanocell Trained as Inverter



Inverter Truth Table	
Input A	Output 1
0	1
1	0

FIG. 8

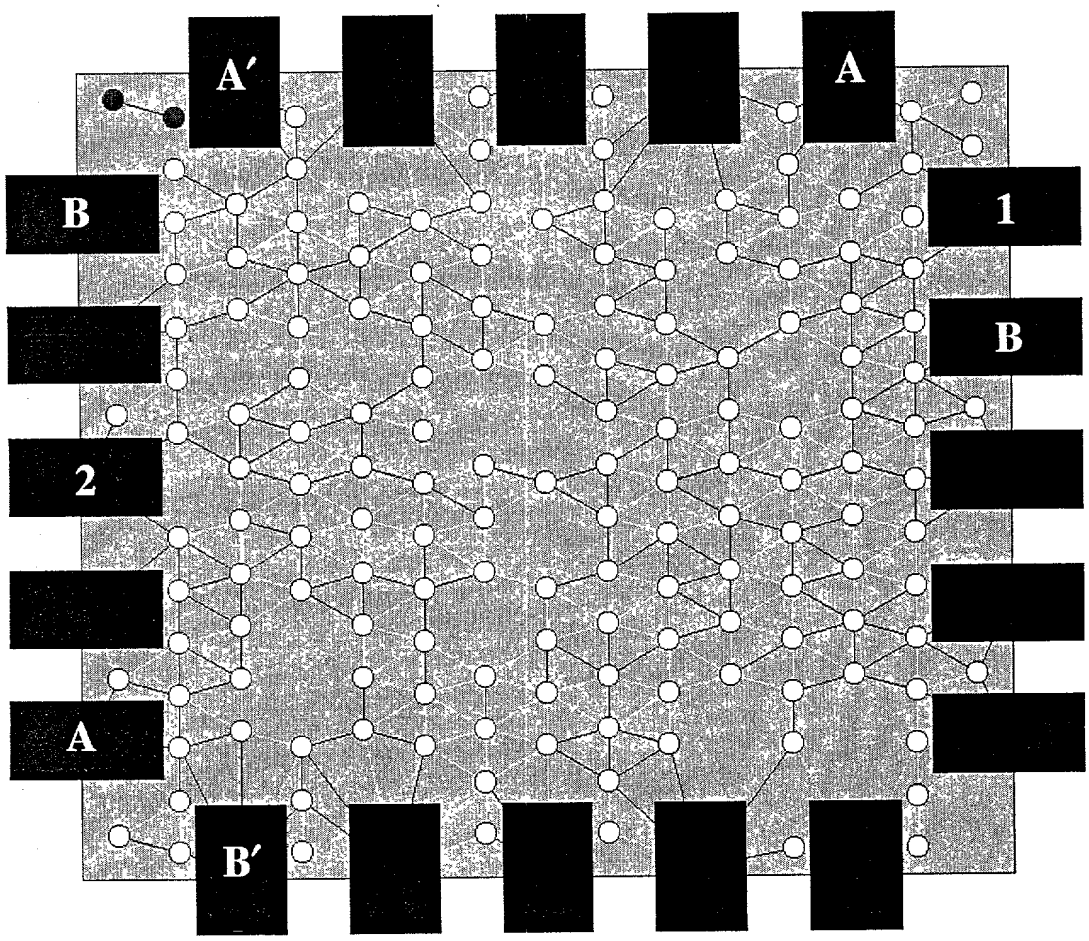
Nanocell Trained as Nand



Nand Truth Table		
Input A	Input B	Output 1
0	0	1
0	1	1
1	0	1
1	1	0

FIG. 9

Nanocell Trained as Inverse Half Adder



Inverse of Half Adder Truth Table			
Input A	Input B	Output 1	Output 2
0	0	1	1
0	1	1	0
1	0	1	0
1	1	0	1

FIG. 10